ELSEVIER

Nuclear Engineering and Design 151 (1994) 557–559

Nuclear Engineering and Design

Contents of Volume 151

CONTENTS OF ISSUE 151(1)

Papers Dedicated to Dr. Novak Zuber on the Occasion of his 71st Birthday

Introduction, *S. Levy and T.G. Theofanous* xiii

Dedications, *M. Ishii, R.B. Duffey, F. Mayinger and F. Staub* xv

The particle pressure of arrays in a potential flow, *G.B. Wallis* 1

Analysis of the bubbly/slug flow regime transition, *S. Kalkach-Navarro, R.T. Lahey, Jr. and D.A. Drew* 15

Scaling single-state variable catastrophe functions: an application to two-phase natural circulation, *J.N. Reyes, Jr.* 41

Fluid-to-fluid scaling for a gravity- and flashing-driven natural circulation loop, *G. Yadigaroglu and M. Zeller* 49

Interfacial area in bubbly flow: experimental data and correlations, *J.M. Delhaye and P. Bricard* 65

Internal structure and interfacial velocity development for bubbly two-phase flow, *G. Kocamustafaogullari and W.D. Huang* 79

Some challenges to the thermal–hydraulic codes, *Y.-Y. Hsu* 103

Integral methods for simulating transient conduction in nuclear reactor components, *W. Wulff* 113

Non-stationary outflow and rarefaction waves in flashing liquid, *R.I. Nigmatulin and K.I. Soplenkov* 131

Validation of the Engineering Plant Analyzer methodology with Peach Bottom 2 stability tests, *U.S. Rohatgi, A.N. Mallen, H.S. Cheng and W. Wulff* 145

Benchmarking and qualification of the NUFREQ-NPW code for best estimate prediction of multichannel core stability margins, *R.P. Taleyarkhan, A.F. McFarlane, R.T. Lahey, Jr. and M.Z. Podowski* 157

Water level measurement uncertainty during BWR instability, *R.C. Torok, T.C. Derbidge and J.M. Healzer* 173

Two-phase flow in porous media with phase change: post dryout heat transfer and steam injection, *I. Catton and M. Chung* 185

Integral analysis of debris material and heat transport in reactor vessel lower plenum, *K.Y. Suh and R.E. Henry* 203

Stepwise integral scaling method for severe accident analysis and its application to corium dispersion in direct containment heating, *M. Ishii, G. Zhang, H.C. No and F. Eltwila* 223

Heat transfer during molten corium–concrete interactions, *S. Levy* 235

Critical heat flux through curved, downward facing, thick walls, *T.G. Theofanous, S. Syri, T. Salmassi, O. Kymäläinen and H. Tuomisto* 247

Technical Engineering Note

Concerning the location of void detachment in annuli, *G.S. Lellouche* 259

Instructions to Contributors 265

CONTENTS OF ISSUES 151(2–3)

Extended and Updated Selected Papers from the 18th MPA-Seminar, Stuttgart, Germany, October 8 and 9, 1992

Preface, *K. Kussmaul* xxi

Failure behaviour of thick-walled, austenitic pipe bends under cyclic bending loading at constant internal pressure, *H. Diem, D. Blind, E. Roos, O. Wachter and E. Tolksdorf* 269

Fracture mechanics evaluation of cracked components with consideration of multiaxiality of stress state, *X. Schuler, D. Blind, U. Eisele, K.-H. Herter and W. Stoppler* 291

Crack growth and fracture behaviour of pipes with circumferential defects under internal pressure and superimposed alternating bending load, *W. Stoppler, D. Sturm, K. Hippelein and A. de Boer* 307

Application of material models and assessment of strains in a surgeline under cyclic thermal loading, *H. Kordisch, G. Nagel, J.-G. Blauel, H. Stöckl and M. Sester* 321

Investigations of creep ratcheting on thick-walled tubes, *G. Breitbach, A. Schmidt-Plutka, F. Schubert and H. Nickel* 337

Phase 2 of the International Piping Integrity Research Group programme, *B.J. Darlaston* 347

Development of a database of pipe fracture experiments, *P. Scott, G. Wilkowski, D. Sturm and W. Stoppler* 359

Safety analysis of reactor pressure vessels considering irradiation effects and improved temperature calculations for PTS, *G. Bartholomé, M. Erve, R. Hertlein, E. Keim and A. Schöpper* 373

Large stable crack growth in fracture mechanics specimens, *W. Brocks, A. Eberle, S. Fricke and H. Veith* 387

Technical Engineering Note

Role of irradiated materials data in performing reactor vessel fracture toughness analysis, *A.L. Lowe, Jr. and K.K. Yoon* 401

Application of leak-before-break concept to integrity and safety of PWR primary piping with WWER 1000, *V.A. Kiselev, E.Yu. Rivkin, Yu.I. Smirnov, L.M. Sokov and A.V. Sudakov* 409

Analysis of the failure behaviour of longitudinally flawed pipes and vessels, *W. Stoppler, D. Sturm, P. Scott and G. Wilkowski* 425

J_R curves of the low alloy steel 20 MnMoNi 5 5 with two different sulphur contents in oxygen-containing high temperature water at 240 °C, *R. Schellenberger and P. Deimel* 449

Stress corrosion cracking of mild steel in high pressure, high temperature water during slow strain rate testing, *H. Gladen and H. Kaesche* 463

Structural dynamics and fracture mechanics calculations of the behaviour of a DN 425 test piping system subjected to transient loading by water hammer, *K. Kussmaul, E. Kobes, H. Diem, D. Schrammel and S. Brosi* 473

Technical Engineering Note
Determination of crack initiation and crack resistance using compact specimens, and comparison with results of numerical simulation of dynamically loaded wide plates, *K. Kussmaul, T. Link, A. Klenk and T. Nguyen-Huy* 489

Technical Engineering Note
Examples of the evolution of materials for nuclear applications: metallurgical improvement of 16MND5 steel and new technologies for manufacturing heavy components, *P. Bocquet, A. Cheviet and R. Dumont* 503

Technical Engineering Note
Manufacturing and material properties of ultralarge size forgings for advanced BWRPV, *K. Susuki, I. Sato and H. Tsukada* 513

Technical Engineering Note
Crack growth measurements on components under cyclic loading: comparison of different methods, *B. Kluttig, H. Steinmill, W. Stoppler and H.P. Keller* 523
Flaw detection ability of NDT techniques on clad surfaces of reactor pressure vessels, *T. Just* 531
Current in-service inspections of austenitic stainless steel and dissimilar metal welds in light water nuclear power plants, *L. von Bernus, W. Rathgeb, R. Schmid, F. Mohr and M. Kröning* 539

Technical Engineering Note
Ultrasonic inspections of fuel alignment pins, *W. Rathgeb and R. Schmid* 551

Contents of Vol. 151 557

Author Index of Vol. 151 561

Subject Index of Vol. 151 565

Instructions to Contributors 569